

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Attorney Docket No.: JP919990215US1

In re Application of:

SHIGEFUMI ODAOHARA

Serial No.: 09/754,483

Filed: 1 APRIL 2001

For: POWER SUPPLY UNIT AND  
COMPUTER§  
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Examiner: CHANG, E.

Art Unit: 2116

APPEAL BRIEF

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MS Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Brief is submitted in triplicate in support of the Appeal in the above-identified application.

CERTIFICATE OF FACSIMILE  
37 CFR § 1.8(a)

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office via facsimile on the date below.

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**REAL PARTY IN INTEREST**

The present application is assigned to International Business Machines Corporation, the real party of interest.

**RELATED APPEALS AND INTERFERENCES**

No related appeal is presently pending.

**STATUS OF THE CLAIMS**

Claims 1-13 stand finally rejected by the Examiner as noted in the Final Office Action dated July 13, 2004 and in the Advisory Action dated August 31, 2004.

**STATUS OF AMENDMENTS**

Two amendments were submitted subsequent to the Final Office Action dated July 31, 2004. In the first amendment, Claim 6 was amended according to the suggestion given by the Examiner in the above-mentioned Final Office Action; thus, amended Claim 6 should be entered for the purpose of Appeal. In the second amendment, Claims 1-5 and 11 were cancelled.

**SUMMARY OF THE INVENTION**

Within a personal computer (PC), a direct current (DC)-to-DC converter is typically utilized to convert a first DC voltage level to a second DC voltage level. The DC-to-DC converter can be implemented by a switching power supply circuit and a series power supply circuit.

Generally speaking, switching power supply circuits have relatively low power conversion efficiencies under light loads. On the other hand, series power supply circuits have relatively low power conversion efficiencies under heavy loads. The present invention provides a power supply unit that is capable of furnishing a high power conversion efficiency under a wide range of loads. The power supply unit of the present invention is intended for portable PCs such as notebook computers, sub-notebook computers, personal data assistants, etc., which are required to alternate between an active mode and a suspend mode on a relatively frequent basis.

In accordance with an embodiment of the present invention, a voltage converter (such as a DC/DC converter 66' in Figure 5) includes a first power supply circuit (such as a series power supply circuit 100 in Figure 5), a second power supply circuit (such as a switching power supply circuit 102 in Figure 5), and a detecting circuit (such as a detecting circuit 140 in Figure 5). Both the first power supply circuit and the second power supply circuit are capable of converting an input voltage to an output voltage. The first power supply circuit is connected in parallel with the second power supply circuit. Based on the amount of current supplied to the first and second power supply circuits, the detecting circuit activates either the first power supply circuit or the second power supply circuit to convert an input voltage to an output voltage.

#### ISSUES

Is the Examiner's rejection of Claims 1-13 under 35 U.S.C. § 102(e) as being anticipated by *Ferry et al.* (US 6,150,798) well-founded?

#### GROUPING OF THE CLAIMS

For purposes of this Appeal, Claims 6-10 and 12-13 stand or fall together as a single group.

#### ARGUMENT

The Examiner's rejections of Claims 6-10 and 12-13 are not well-founded and should be reversed.

*Ferry* does not teach or suggest a detecting circuit for activating one of two power supply circuits based on the amount of current supplied to the two power supply circuits

Claim 6 recites "a detecting circuit for activating either said first power supply circuit or said second power supply circuit to convert said input voltage to said output voltage based on an amount of current supplied to said first and second power supply circuits" (lines 7-9).

On page 4 of the Final Office Action, the Examiner asserts that the claimed detecting circuit is disclosed by *Ferry* because *Ferry* teaches that "the control means selects one of the

regulation components according to the current consumed by the load" in col. 3, lines 40-42. However, the claimed detecting circuit makes its selection based on the amount of current supplied to a first power supply circuit and a second power supply circuit, and not based on the current consumed by the load, as disclosed by *Ferry*. Thus, *Ferry* does not teach or suggest the claimed detecting circuit that activates one of the power supply circuits based on the amount of current supplied to the power supply circuits. Because the claimed invention recites novel features that are not taught or suggested by *Ferry*, the § 102 rejection is improper.

CONCLUSION

For the reasons stated above, Appellant believes that the claimed invention clearly is patentably distinct over the cited reference and that the rejections under 35 U.S.C. § 102 are not well-founded. Hence, Appellant respectfully urges the Board to reverse the Examiner's rejection.

Please charge the IBM Deposit Account 50-0563 in the amount of \$330.00 for submission of a Brief in support of Appeal. No additional fee or extension of time is believed to be required; however, in the event an additional fee or extension of time is required, please charge that fee or extension of time requested to the IBM Deposit Account 50-0563.

Respectfully submitted,



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APPENDIX

1-5. cancelled

6. A voltage converter comprising:

a first power supply circuit capable of converting an input voltage to an output voltage;

a second power supply circuit capable of converting said input voltage to said output voltage, wherein said second power supply circuit is connected in parallel with said first power supply circuit; and

a detecting circuit for activating either said first power supply circuit or said second power supply circuit to convert said input voltage to said output voltage based on an amount of current supplied to said first and second power supply circuits.

7. The voltage converter of Claim 6, wherein said first power supply circuit is a series power supply circuit, and said second power supply circuit is a switching power supply circuit.

8. The voltage converter of Claim 6, wherein said first power supply circuit has a relatively high conversion efficiency during a low load demand, and said second power supply circuit has a relatively high conversion efficiency during a high load demand.

9. The voltage converter of Claim 6, wherein said first power supply is activated by said detecting circuit when said current amount is below a predetermined value, wherein said second power supply is activated by said detecting circuit when said current amount exceeds said predetermined value.

10. The voltage converter of Claim 6, wherein said current amount is below a predetermined value when said voltage converter is in a suspended state, wherein said current amount exceeds said predetermined value when said voltage converter is in a non-suspended state.

11. cancelled

12. The voltage converter of Claim 6, wherein said first and second power supply circuits share a common voltage input and a common voltage output.

13. The voltage converter of Claim 6, wherein said detecting circuit includes a current sense amplifier coupled to a power input line for said first and second power supply circuits.